AMENDMENT(S) TO THE SPECIFICATION

Please replace the paragraph beginning at page 1, line 6, with the following rewritten paragraph:

The present invention relates to a three-dimensional wire-woven cellular light structure formed of a group of continuous wires and a method of fabricating the same. In ~~particularly~~ particular, the invention relates to such a cellular light structure, in which six orientational-wire groups are intercrossed with respect to each other at 60 degrees or 120 degrees [[of]] angles in a three-dimensional space to thereby construct the structure similar to the ideal Octet or Kagome truss and having [[a]] good mechanical ~~property~~ properties such as strength, rigidity or the like. Also, the invention relates to the method of mass-producing the same in a cost-effective manner.

Please replace the paragraph beginning at page 1, line 20, with the following rewritten paragraph:

Conventionally, a metal foam has been known as a typical cellular light structure. This metal foam is manufactured by producing bubbles inside a metal of liquid or semi-solid state (Closed cell), or by casting the metal into a mold made of a foaming resin (Open cell). However, these metal foams have relatively inferior mechanical properties such as strength and rigidity. In addition, due to [[its]] their high manufacturing cost, ~~it has~~ they have not been used widely in practice, except for a special purpose such as in airspace or aviation industries.

Please replace the paragraph beginning at page 2, line 10, amended in the Amendment filed herein and dated June 14, 2010, with the following rewritten paragraph:

Referring to FIGS. 1a to 1b, the two-dimensional Octet truss 101 and the two-dimensional Kagome truss 102 are compared, that is, the unit cell 102a of the Kagome truss 102 has an equilateral triangle and a regular hexagon mixed in each face, dissimilar to the unit cell 101a of the Octet truss 101. FIGS. 2a -2c and 3a-3c show a single layer of the three-dimensional Octet truss 201 and the three-dimensional Kagome truss 202, respectively. Comparing the unit cell 201a of the three-dimensional Octet truss 201 with the unit cell 202a of the three-dimensional Kagome truss 202, one significant ~~features~~ feature of the 3D Kagome truss 202 is

that it has isotropic mechanical properties. Therefore, the structural materials or other materials based on the Kagome truss have a uniform mechanical and electrical property regardless of its orientation.

Please replace the paragraph beginning at page 2, line 24, with the following rewritten paragraph:

On the other hand, several processes have been used for manufacturing a cellular light structure of truss-type. First, a truss structure is formed of a resin and a metal is cast using the truss structure as a mold (See S. Chiras, D.R. Mumm, N. Wicks, A. G. Evans, J.W. Hutchinson, K. Dharmasena, H.N.G. Wadley, S. Fichter, 2002, International Journal of Solids and Structures, Vol. 39, pp.4093-4115). Second, a metallic net is formed by making periodic holes in a thin metal plate, a truss core is formed by crimping the metallic net, and face sheets are ~~bended~~ bent to the upper and lower portion thereof (See D.J. Sypeck and H.N.G. Wadley, 2002, Advanced Engineering Materials, Vol. 4, pp.759-764). Here, in the case where a multi-layered structure having more than one layer is fabricated, another crimped-truss core is placed above the upper face sheet and another upper face sheet is positioned again above second core. In [[the]] a third method, a wire-net is first woven using two orientational-wires perpendicular to each other, and then the wire-nets are laminated and bonded (See D.J. Sypeck and H.G.N. Wadley, 2001, J. Mater. Res., Vol. 16, pp. 890-897).

Please replace the paragraph beginning at page 3, line 11, with the following rewritten paragraph:

~~In the first method, its~~ The manufacturing procedures of the first method are complicated, which leads to an increased manufacturing cost. Only metals having a good castability can be ~~applied~~ used and consequently it has limited applications. The resultant material tends to have casting defects and deficient mechanical properties. In ~~case of~~ the second method, the process making periodic holes in thin metal ~~plate~~ plates leads to loss of materials. Moreover, even though there is no specific problem in manufacturing a sandwiched plate material having a single-layered truss, the truss cores and face sheets must be laminated and bonded repeatedly so as to

manufacture a multi-layered structure, thereby producing many bonding points which results in disadvantages ~~in terms~~ of bonding cost and strength.

Please replace the paragraph beginning at page 3, line 24, with the following rewritten paragraph:

On the other hand, in case of the third method, ~~basically~~ the formed truss has no ideal regular tetrahedron or pyramid shape and thus has an inferior mechanical strength. Similar to the second method, lamination and bonding ~~must be~~ are involved ~~for manufacturing~~ to manufacture a multi-layered structure and therefore disadvantageous [[in]] with respect [[of]] to bonding cost and strength.

Please replace the paragraph beginning at page 4, line 7, amended in the Amendment filed herein and dated June 14, 2010, with the following rewritten paragraph:

By the way, a common fiber reinforced composite material is manufactured in the form of a thin two-dimensional layer, which is laminated when a thick material is required. Due to a de-lamination phenomenon between the layers, however, its strength tends to be ~~deteriorated~~ decreased. Therefore, first the fiber is woven in a three-dimensional structure, and then a matrix such as resin, metal, or the like is combined with the structure. FIGS. 5a-5b are perspective views of the woven fiber in this three-dimensional fiber-reinforced composite material. Instead of fibers, a material such as a metallic wire having a high stiffness can be woven into a three-dimensional cellular light structure as shown in FIGS. 5a-5b. However, it also does not have the above-described ideal Octet or Kagome truss structure so that it has a decreased mechanical strength and anisotropic material properties. Consequently, the composite material using the three-dimensional woven-fiber comes to have an inferior mechanical ~~property~~ properties.

Please replace the paragraph beginning at page 4, line 25, with the following rewritten paragraph:

The present invention has been made to solve the above problems occurring in the prior art, and it is an object of the invention to provide a three-dimensional cellular light structure, in which six orientational-wire groups are intercrossed at 60 degrees or 120 degrees [[of]] angles in a three-dimensional space to thereby construct [[the]] a structure similar to the ideal Octet or Kagome truss and having [[a]] good mechanical ~~property~~ properties such as strength, rigidity or the like.

Please replace the paragraph beginning at page 5, line 4, with the following rewritten paragraph:

The three-dimensional light structure of the invention is constructed in such a manner that a continuous wire is directly woven into a three-dimensional structure, not in the manner that planar wire-nets are simply laminated and bonded. Therefore, the cellular light structure of the invention is very similar to the ideal Octet truss or Kagome truss, and thus exhibits [[a]] good mechanical and electrical ~~property~~ properties.

Please replace the paragraph beginning at page 5, line 11, with the following rewritten paragraph:

In order to accomplish the above objects, according to one aspect of the present invention, there is provided a three-dimensional wire-woven cellular light structure formed of six groups of orientational-continuous-wires intercrossed at 60 degrees or 120 degrees [[of]] angles in a three-dimensional space. A unit cell of the cellular light structure of the invention comprises: a first regular tetrahedron member formed of a first to sixth wires, the first regular tetrahedron member being constructed in such a manner that the first wire, the second wire, and the third wire are intercrossed in a plane to form a equilateral triangle, the fourth wire is intercrossed with the intersection point of the second wire and the third wire, the fifth wire is intercrossed with the intersection point of the first wire and the second wire, and the sixth wire is intercrossed with the intersection point of the third wire and the first wire, the fourth wire, the

fifth wire, and the sixth wire being intercrossed with one another at a single reference intersection point; and a second regular tetrahedron member ~~contacted with~~ contacting the first regular tetrahedron member at the reference intersection point and having a similar shape to the first regular tetrahedron, the second regular tetrahedron member being constructed in such a manner that the fourth wire, the fifth wire, and the sixth wire pass the reference intersection point and extend further, each of a group of wires is intercrossed with two wires selected from the extended fourth, fifth and sixth wires, the group of wires being in parallel with the first wire, the second wire, and the third wire respectively; wherein the wires are intercrossed with each other at 60 degrees or 120 degrees, and the unit cell is repeated in a three-dimensional pattern, thereby forming a truss-type structure.

Please replace the paragraph beginning at page 6, line 22, with the following rewritten paragraph:

The intersection point of the wires preferably may be bonded by any [[one]] method selected from the group consisting of application of a liquid- or spray-form adhesive, brazing, soldering, and welding.

Please replace the paragraph beginning at page 7, line 5, with the following rewritten paragraph:

According to another aspect of the invention, there is provided a method of fabricating a three-dimensional wire-woven cellular light structure formed of six groups of orientational-continuous-wires intercrossed with each other at 60 degrees or 120 degrees [[of]] angles in a three-dimensional space. The method of the invention comprises steps of: forming an equilateral triangle by intercrossing a first wire, a second wire, and a third wire in a plane; forming a first regular tetrahedron member by intercrossing a fourth wire with the second wire and the third wire, intercrossing a fifth wire with the first wire and the second wire, intercrossing a sixth wire with the third wire and the first wire, and intercrossing the fourth wire, the fifth wire, and the sixth wire through a single reference intersection point; forming a second regular tetrahedron member ~~contacted with~~ contacting the first regular tetrahedron member at the reference

intersection point and having a similar shape to the first regular tetrahedron by passing and extending the fourth wire, the fifth wire, and the sixth wire through the reference intersection point, and intercrossing each of a group of wires with two wires selected from the extended fourth, fifth and sixth wires, the group of wires being in parallel with the first wire, the second wire, and the third wire respectively; and repeatedly forming the first and second regular tetrahedron member to thereby form a truss-type structure.

Please replace the paragraph beginning at page 8, line 8, with the following rewritten paragraph:

In the method of the invention, the wires may be one material selected from the group consisting of metal, ceramics, synthetic resin, and fiber-reinforced synthetic resin.

Please replace the paragraph beginning at page 8, line 11, with the following rewritten paragraph:

The method of the invention may further comprise a step of bonding the intersection point of the wires, wherein the intersection points of the wires may be bonded by any [[one]] method selected from the group consisting of application of a liquid- or spray-form adhesive, brazing, soldering, and welding.

Please replace the paragraph beginning at page 8, line 28, with the following rewritten paragraph:

As described above, according to the invention, a three-dimensional cellular light structure, which has a similar form to the ideal Kagome or Octet truss and thus has good material properties, can be fabricated in a continuous and ~~cost-effectively~~ cost-effective manner.

Please replace the paragraph beginning at page 9, line 1, with the following rewritten paragraph:

In a conventional technique, each layer of a structure is first fabricated and then laminated or cast into the three-dimensional structure. Therefore, the ~~convention~~ conventional technique is

disadvantageous in terms of manufacturing cost, owing to its non-continuous process. According to the invention, a three-dimensional structure of truss-type can be continuously fabricated by means of a through process in such a way as to weave continuous wires into a fabric, thereby enabling [[a]] mass production and ~~cost-down~~ decreased costs.

Please replace the paragraph beginning at page 9, line 32, with the following rewritten paragraph:

FIG. 7 is a perspective view of a unit cell corresponding to the portion A in FIG. 6 when the two-dimensional structure of FIG. 6 is transformed into a three-dimensional structure similar to the three-dimensional Kagome truss in ~~FIG. 3~~ FIGS. 3a-3c;

Please replace the paragraph beginning at page 10, line 4, with the following rewritten paragraph:

FIG. 8 is a perspective view of a unit cell corresponding to the one of the Kagome truss in ~~FIG. 3~~ FIGS. 3a-3c where the unit cell is constructed using six orientational groups of wires;

Please replace the paragraph beginning at page 10, line 13, amended in the Amendment filed herein and dated June 14, 2010, with the following rewritten paragraph:

FIGS. 11a-11b [[is a]] are perspective ~~view~~ views of a vertex of the regular tetrahedron formed by the three orientational-wire groups in the structure of FIG. 9 where the vertex is seen from the front thereof;

Please replace the paragraph beginning at page 10, line 17, amended in the Amendment filed herein and dated June 14, 2010, with the following rewritten paragraph:

FIGS. 12a-12b are perspective views of unit cells formed by [[a]] the different wire-intercrossing mode [[in]] of FIGS. 11a-11b;

Please replace the paragraph beginning at page 10, line 31, amended in the Amendment filed herein and dated June 14, 2010, with the following rewritten paragraph:

FIG. 6 is a plan view of a wire-woven network formed of three orientational-parallel wire groups and similar to the two-dimensional Kagome truss in ~~FIGS. 1a-1b~~ FIG. 1b, FIG. 7 is a perspective view of a unit cell corresponding to the portion A in FIG. 6 when the two-dimensional structure of FIG. 6 is transformed into a three-dimensional structure similar to the three-dimensional Kagome truss in FIGS. 3a-3c, FIG. 8 is a perspective view of a unit cell corresponding to the one of the Kagome truss in ~~FIGS. 3a-3c~~ FIG. 3c where the unit cell is constructed using six orientational groups of wires, FIG. 9 is a perspective view showing a three-dimensional cellular light structure of Kagome truss type, which is manufactured using six orientational-wire groups, FIGS. 10a-10c are perspective views of the three-dimensional cellular light structure of FIG. 9 as seen from different angles, FIGS. 11a-11b are perspective views of a vertex of the regular tetrahedron formed by the three orientational-wire groups in the structure of FIG. 9 where the vertex is seen from the front thereof, FIGS. 12a-12b are perspective views of unit cells formed by [[a]] the different wire-intercrossing mode [[in]] of FIGS. 11a-11b, FIG. 13 is a perspective view of a three-dimensional cellular light structure of Octet truss type where the structure has a different length between the intersection points of wires, FIG. 14 is a perspective view of a unit cell in the structure of FIG. 13, and FIG. 15 is a flow chart showing the manufacturing procedures of the three-dimensional cellular light structure according to the invention.

Please replace the paragraph beginning at page 11, line 27, amended in the Amendment filed herein and dated June 14, 2010, with the following rewritten paragraph:

FIG. 6 is a plan view of a wire-woven network formed of three orientational-wire groups 1, 2 and 3, which is similar to the two-dimensional Kagome truss in ~~FIGS. 1a-1b~~ FIG. 1b. In the network, which is woven in three axes using the wire groups 1, 2, and 3, two lines of each intersection point are intercrossed at 60 degree or 120 degrees. Each truss element constituting the Kagome truss is substituted with a continuous wire, and thus the structure of the invention

has a great similarity to an ideal Kagome truss, except that the continuous wire ~~make a curvature~~ curves while intercrossing each intersection point thereof.

Please replace the paragraph beginning at page 12, line 5, with the following rewritten paragraph:

FIG. 7 is a three-dimensional view of the portion marked by A in FIG. 6. The equilateral triangles facing each other are transformed into [[the]] regular tetrahedrons, and three wires, not two wires, are intercrossed with each other at 60 degrees or 120 degrees. This structure is constructed by six orientational-wire groups 4 to 9, which are disposed so as to have the same orientation angle with each other as in the three-dimensional space.

Please replace the paragraph beginning at page 12, line 30, with the following rewritten paragraph:

Other wire groups 4', 5' and 6' are provided in such a way as to ~~place~~ be located above the vertex (reference vertex) of the first regular tetrahedron member, which is formed by intercrossing of the wire groups 7, 8, and 9 and which is located above the plane in which the wire groups 4, 5, and 6 are intercrossed with one another. ~~Other~~ The other wire groups 4', 5', and 6', which have ~~having~~ the same orientations as the wire groups 4, 5, and 6, are disposed such that each of them intercrosses two wires selected from the wire groups 7, 8, and 9 to thereby form an equilateral triangle. Accordingly, the wire groups 4', 5', 6', 7, 8, and 9 [[is]] are disposed so as to form another regular tetrahedron member (the second regular tetrahedron). In consequence, the unit cell of the three-dimensional cellular light structure 10 is composed of the first regular tetrahedron member formed by the wire groups 4, 5, 6, 7, 8, and 9 and the second regular tetrahedron member formed by the wire groups 4', 5', 6', 7, 8, and 9. The first and second regular tetrahedron members are constructed respectively at the upper and lower side of the intersection point formed by the wire groups 7, 8, and 9 and ~~faced with~~ face each other. Here, the first and second regular tetrahedron members have a similar shape. If the ratio of similarity (the ratio of length) is 1:1, [[it]] the unit cell constitutes a structure similar to the Kagome truss. If the ratio of similarity is much higher than 1:1, the first regular tetrahedron member is much smaller than the

second [[on]] one to the extent to be considered as a single point, thereby forming a structure similar to the Octet truss.

Please replace the paragraph beginning at page 13, line 24, with the following rewritten paragraph:

In the case where the cellular light structure of the invention has a similar structure to the Octet truss, the similarity ratio of a smaller tetrahedron member to a larger one is preferred to be below 1:10. If the similarity ratio is higher than 1:10, the wires must be bent so as to form a small radius of curvature in order to construct the smaller regular tetrahedron member, thereby leading to [[a]] difficulty in fabricating the structure. Furthermore, the edge wires constituting the larger tetrahedron member ~~become~~ come to have excessive slenderness, which tends to result in [[the]] a buckling phenomenon.

Please replace the paragraph beginning at page 14, line 3, with the following rewritten paragraph:

In order to form a plurality of unit cells 10 in a three-dimensional continuous pattern, the wires are disposed such that an opposing regular tetrahedron member can be constructed at each of ~~other~~ the vertexes of [[the]] a regular tetrahedron member, which is formed by the wire groups 4 to 9. Therefore, a three-dimensional cellular light truss-structure can be constructed in such a manner that the above unit-cell is repeatedly formed and combined in the three-dimensional space.

Please replace the paragraph beginning at page 14, line 11, amended in the Amendment filed herein and dated June 14, 2010, with the following rewritten paragraph:

In this way, a unit cell similar to the one of the three-dimensional Kagome truss shown in ~~Figs. 3a-3c~~ FIG. 3c can be constructed through the above-described wire arrangement of six orientational-wires, which is shown in FIG. 8.

Please replace the paragraph beginning at page 14, line 20, amended in the Amendment filed herein and dated June 14, 2010, with the following rewritten paragraph:

As shown in FIGS. 10a-10c, the three-dimensional cellular light structure 11 of truss-type appears differently depending on the viewing directions. In particular, the figure at the bottom of FIGS. 10a-10c is almost similar to the two-dimensional Kagome truss, and is seen from the direction of one wire among the six orientational-wire groups. That is, the three-dimensional cellular light structure 11 of the invention ~~is appeared as~~ appears to have the same shape and pattern when seen along the axial direction of each of six wires, which are intercrossed with each other at the same angle (60 degrees or 120 degrees).

Please replace the paragraph beginning at page 16, line 2, with the following rewritten paragraph:

FIG. 15 is a flow chart showing the manufacturing procedures of the three-dimensional cellular light structure according to the invention. According to the fabricating method of the invention, a basic equilateral triangle is formed by intercrossing three wires 4, 5, and 6 in a plane. Then, a basic regular tetrahedron (a first regular tetrahedron member) is constructed ~~in such a manner that~~ by a wire 7 ~~intercrosses~~ intercrossing the intersection point of the wires 5 and 6, a wire 8 ~~intercrosses~~ intercrossing the intersection point of the wires 4 and 5, and a wire 9 ~~intercrossed~~ intercrossing the intersection point of the wire 6 and 4, the three wires 6, 9, and 7 [[are]] being intercrossed so as to form an equilateral triangle, the three wires 4, 8, and 9 [[are]] being intercrossed so as to form an equilateral triangle, and the three wires 5, 7, and 8 [[are]] being intercrossed so as to form an equilateral triangle. Next, above the vertex of the first tetrahedron member formed by the wires 4 to 9, another basic equilateral triangle is formed by intercrossing three wires 4', 5', and 6', each of which has the same orientation as the [[wire]] wires 4, 5, and 6 respectively. Thereafter, another regular tetrahedron (a second regular tetrahedron member) is constructed in ~~such a manner that~~ by intercrossing the three wires 4', 8, and 9, the three wires 5', 7, and 8, and the three wires 6', 9, and 7 ~~respectively are intercrossed~~ so as to form [[an]] respective equilateral ~~triangle~~ triangles. Accordingly, at both sides of the intersection point (vertex) formed by the three wires 7, 8, and 9, the first tetrahedron member

(formed by the wires 4, 5, 6, 7, 8, and 9) and the second tetrahedron member (formed by the wires 4', 5', 6', 7, 8, and 9) are constructed to face each other and form a unit cell. In the same way as above, the wires are disposed such that an opposing tetrahedron member can be formed at each of the other vertexes of the first regular tetrahedron member formed by the six wires 4 to 9, and thus a plurality of unit cells can be repeatedly formed to thereby fabricate a three-dimensional cellular light structure of the invention. In this case, the first and second tetrahedron members have a similar shape. In the case where the similarity ratio thereof is 1:1, they form a structure similar to the Kagome truss. If the similarity ratio is much higher than 1:1, they come to make a structure similar to the Octet truss as described above.

Please replace the paragraph beginning at page 17, line 9, with the following rewritten paragraph:

The wire material of the three-dimensional cellular light structure of truss-type is not specifically limited, but may employ metals, ceramics, fibers, synthetic resins, fiber-reinforced synthetic resins, or the like.

Please replace the paragraph beginning at page 17, line 18, with the following rewritten paragraph:

Furthermore, there is no limitation in the diameter of the wires and the size of the cellular light structure. For example, iron rods of tens of millimeters in diameter can be employed in order to construct a structural material for buildings, etc.

Please replace the paragraph beginning at page 17, line 22, amended in the Amendment filed herein and dated June 14, 2010, with the following rewritten paragraph:

On the other hand, if wires of a few millimeters are used, the resultant cellular light structure can be used as a frame structure for reinforced composite material. For example, using as a basic frame the three-dimensional cellular light structure of the inventions, a liquid or semi-solid resin or metal may be filled into the empty space of the structure and then solidified to thereby manufacture a bulk reinforced composite material having a good rigidity and toughness.

Furthermore, in the case where the three-dimensional cellular light structure of Octet type shown in ~~FIGS. 12a-12b~~ FIG. 13 is used, the smaller one of the two tetrahedron members constituting the unit cell may be filled with resin or metal to manufacture a porous reinforced composite material. This reinforced composite material is isotropic or almost isotropic and thus has uniform material properties regardless of its orientation. Therefore, it can be cut into any arbitrary shapes. Also, the wires are interlocked in all directions, thereby preventing ~~damages~~ damage such as de-lamination or pull-out of wires, which can occur in [[the]] conventional composite materials.

Please replace the paragraph beginning at page 18, line 11, with the following rewritten paragraph:

As described above, according to the invention, a three-dimensional cellular light structure, which has a similar form to the ideal Kagome or Octet truss and thus has good material properties, can be fabricated in a continuous and ~~cost-effectively~~ cost-effective manner.

Please replace the paragraph beginning at page 18, line 16, with the following rewritten paragraph:

In conventional techniques, each layer structure is first fabricated and then laminated or cast into [[the]] a three-dimensional structure. Therefore, the ~~convention~~ conventional technique is disadvantageous in terms of manufacturing cost, owing to its non-continuous process. According to the invention, a three-dimensional structure of truss-type can be continuously fabricated by means of a through process in such a way as to weave continuous wires into a fabric, thereby enabling [[a]] mass production and ~~cost-down~~ related costs.